

Abstract

A controlled release product is provided having a suppressed initial release period and a predetermined longevity. The product includes a particulate water soluble core material and a semi-permeable coating layer applied on the core material for controlling the release rate of the core material. The semi-permeable coating layer is formulated in accordance with the following equation to provide a release rate wherein initial release of core material from the product is suppressed so that less than about 15 weight percent of core material is released from the product within a 24 hour period after application of the product and wherein longevity of release, at ambient temperature, between the time of application and the time at which at least about 75 weight percent of the core material is released from the product is 60 days or less:

$$WVTR = \frac{\phi \cdot \delta}{\pi d^2}$$

wherein:

- (i) WVTR is the water vapor transmission rate of the semi-permeable coating expressed in grams·μm/meters²·day;
- (ii) φ is the water diffusion rate (water flux) through the semi-permeable coating expressed in grams/day;
- (iii) δ is the thickness of the coating layer expressed in μm; and
- (iv) d is the average diameter of the particulate core material expressed in meters.